

What is claimed is:

1 1. A parallel stream operation apparatus, comprising:  
2 a plurality of paths, each corresponding to a different  
3 one of a plurality of keys used for encrypting and/or decrypting  
4 data streams;  
5 an input stream processing unit operable to receive a  
6 plurality of data streams in parallel, and output each data stream  
7 to a corresponding one of the paths; and  
8 an operation unit operable to decrypt or encrypt each data  
9 stream with a corresponding one of the keys.

1 2. The parallel stream operation apparatus of Claim 1, further  
2 comprising:  
3 an output stream processing unit operable to receive the  
4 plurality of data streams that have been decrypted or encrypted  
5 by the operation unit, and output each received data stream to  
6 a different one of a plurality of output interfaces.

1 3. The parallel stream operation apparatus of Claim 2, wherein  
2 the output stream processing unit includes a crossbar  
3 switch, and  
4 the parallel stream operation apparatus further  
5 comprises:

6        a switch control unit operable to set each contact point  
7        in the crossbar switch on or off, thereby setting a plurality  
8        of output interfaces as output destinations to which the output  
9        stream processing unit is to output the encrypted or decrypted  
10       data streams, the output interfaces being determined according  
11       to which of the paths the data streams were output to by the  
12       input stream processing unit; and

13       a notification unit operable to receive each data stream  
14       from the paths, output each received data stream and the  
15       corresponding key to the operation unit, and notify the switch  
16       control unit of path information of each input data stream.

1    4. The parallel stream operation apparatus of Claim 2, wherein  
2       the operation unit is one of a plurality of operation units  
3       in the parallel stream operation apparatus, and

4       the parallel stream operation apparatus further  
5       comprises:

6       a notification unit operable to receive the plurality of  
7       data streams from the paths, input in parallel each of the  
8       plurality of received data streams and the corresponding key  
9       to a different one of the operations units, and notify each  
10       operation unit of path information of the data stream input to  
11       the operation unit; and

12       a selection control unit operable, for each of the

13 encrypted or decrypted data streams output from the output stream  
14 processing unit, to select, according to the path information  
15 of the data stream, an output interface as an output destination  
16 of the data stream.

1 5. The parallel stream operation apparatus of Claim 2, wherein  
2 the input stream processing unit outputs one of the data  
3 streams to two of the paths, and  
4 one of the two paths is connected to the operation unit,  
5 and the other of the two paths is directly connected to the output  
6 stream processing unit.

1 6. The parallel stream operation apparatus of Claim 1, wherein  
2 the input stream processing unit has a crossbar switch,  
3 and outputs each of the data streams to the respective  
4 corresponding paths by setting switches in the crossbar on, each  
5 of the switches being at a contact point of an input line by  
6 which the data stream has been input to the input stream processing  
7 unit and an output line that is connected to a path corresponding  
8 to the key for encrypting or decrypting the data stream.

1 7. The parallel stream operation apparatus of Claim 1, further  
2 comprising:  
3 a re-input path for re-inputting, into the input stream

4 processing unit, one of the data streams that has already been  
5 encrypted or decrypted and output by the operation unit,  
6 wherein the operation unit encrypts or decrypts the input  
7 data stream that has already been encrypted or decrypted, using  
8 a key that is different to a key previously used to encrypt or  
9 decrypt the data.

1 8. The parallel stream operation apparatus of Claim 1, wherein  
2 the input stream processing unit multiplexes at least two  
3 of the plurality of data streams to generate one data stream.

1 9. The parallel stream operation apparatus of Claim 1, wherein  
2 the input stream processing unit demultiplexes one of the  
3 input data streams to generate a plurality of data streams.

1 10. A parallel stream operation method used in a parallel stream  
2 operation apparatus that includes a plurality of paths, each  
3 of the paths corresponding to a different one of a plurality  
4 of keys used for encrypting and/or decrypting data streams, the  
5 method comprising:

6 an input stream processing step of receiving a plurality  
7 of data streams in parallel, and outputting each data stream  
8 to a corresponding one of the paths; and

9 an operation step of decrypting or encrypting each data

10 stream with a corresponding one of the keys.

1 11. A parallel stream operation program executed in a computer  
2 in a parallel stream operation apparatus that includes a  
3 plurality of paths, each of the paths corresponding to a different  
4 one of a plurality of keys used for encrypting and/or decrypting  
5 data streams, the program comprising:

6 an input stream processing step of receiving a plurality  
7 of data streams in parallel, and outputting each data stream  
8 to a corresponding one of the paths; and  
9 an operation step of decrypting or encrypting each data stream  
10 with a corresponding one of the keys.

1 12. A television reception apparatus, comprising:

2 a plurality of paths, each corresponding to a different  
3 one of a plurality of keys used for encrypting and/or decrypting  
4 data streams;

5 an input stream processing unit operable to receive a  
6 plurality of data streams in parallel, and output each data stream  
7 to a corresponding one of the paths; and

8 an operation unit operable to decrypt or encrypt each data  
9 stream with a corresponding one of the keys.